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Flexible Photovoltaics: An Update

*Brant Lagoon
Physical Scientist
NSRDEC
Presented to JOCOTAS
3 November 2011*

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- Convert the sun's light energy into electricity
 - No Noise
 - No Moving Parts
 - No Fuel Consumption
 - No Pollutants
- Flexible Materials
 - Amorphous silicon
 - Small Units are Lightweight
 - Packable
 - Redeployment
- Additional Benefits
 - Solar Shading
 - Passive Collection

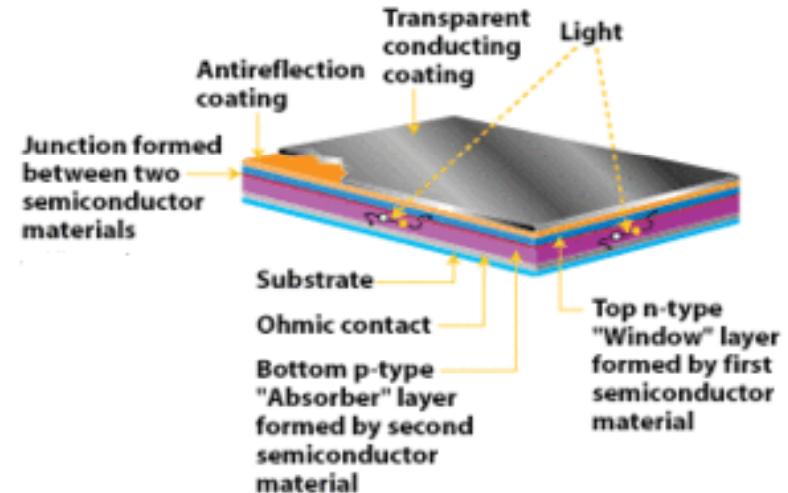


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- ***Developments***

- Research into increasing efficiency of panels
- Research into textured substrates
- Balance of systems development
- Micro grid integration



- ***Evaluations***

- Net-Zero Plus JCTD

- ***Deployments***

- AFRICOM
- Afghanistan



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Net-Zero Plus Joint Capability Technology Demonstration



- *Saves up to 1.52 kW/hr over the baseline tent*
- *Generates and stores enough power to sustain billeting mission overnight*
 - *Mission loads were <1 kW/hr*



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- *Camp Lemonnier, Djibouti*
- *Natick conducted two day training*
- *Year-long, limited military user assessment*
 - Very positive feedback from users
 - Added to HOA property book
 - Request for additional units
- *24/7 exposure, including harsh wind, high temps, extreme dust*
 - Minor de-lamination in corners
 - Current plan to investigate and resolve in upcoming funded effort



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Current Challenges/ Industry Opportunities



- ***Cost***
 - Initial price could be prohibitive for short term deployment
 - Mission based decision
 - ROI could be months or years depending on location
- ***Efficiency***
 - Less efficient compared to mono- and poly-crystalline silicon
- ***Durability***
 - De-lamination
- ***Footprint***
 - Currently designed for most shelters
 - Different configurations based on mission, location, shelters, etc.
- ***Requirements Document is Undefined***

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Questions?



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